

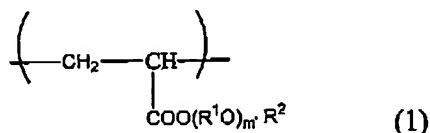
Application No.: 10/820,798

Docket No.: 21581-00320-US1

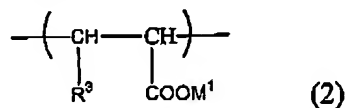
Listing of Claims

This listing of claims replaces all prior listings and versions of the claims.

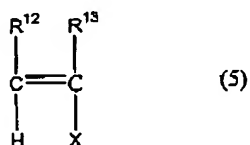
1. (Previously Presented) A polycarboxylic acid cement dispersant which provides a cement composition having a penetrating resistance value exponent of 55 MPa or more and a slump retention exponent of 80% or more, wherein the polycarboxylic acid cement dispersant comprises a polycarboxylic acid polymer having a polyoxyalkylene ester constituent unit (I) represented by the following general formula (1):



wherein R^1O may be the same or different and each represents an oxyalkylene group containing 2 to 18 carbon atoms; m^1 represents the average molar number of addition of the oxyalkylene groups and is a number of 100 to 200; and R^2 represents a hydrogen atom or a hydrocarbon group containing 1 to 3 atoms, and a carboxylic acid constituent unit (II) represented by the following general formula (2):



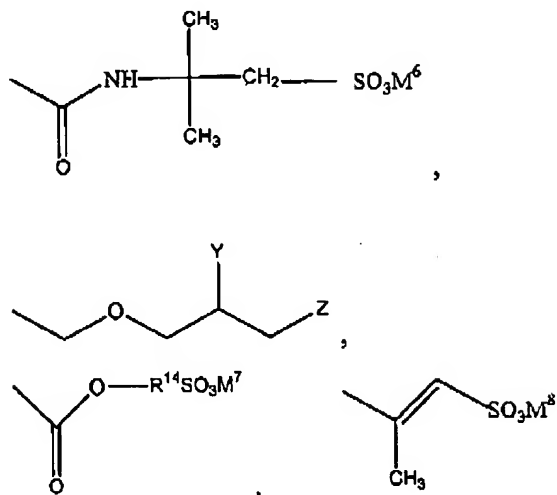
wherein R^3 represents a hydrogen atom, a methyl group or $-\text{COOM}^2$; and M^1 and M^2 may be the same or different and each represents a hydrogen atom, a monovalent metal, a divalent metal, ammonium or organic ammonium, wherein the polycarboxylic acid cement dispersant is obtained by copolymerizing the monomer components further comprising a sulfonic acid group-containing monomer represented by the following general formula (5):



Application No.: 10/820,798

Docket No.: 21581-00320-US1

X:



wherein R^{12} and R^{13} may be the same or different and each represents a hydrogen atom or a methyl group; Y and Z represent a hydroxyl group or $-\text{SO}_3\text{M}^9$, wherein in the case when Y represents a hydroxyl group, Z represents $-\text{SO}_3\text{M}^9$, while in the case when Y represents $-\text{SO}_3\text{M}^9$, Z represents a hydroxyl group; R^{14} represents an alkylene group containing 2 to 4 carbon atoms; and M^6 , M^7 , M^8 and M^9 may be the same or different and each represents a hydrogen atom, a monovalent metal, a divalent metal, ammonium or organic ammonium.

2. (Canceled)

3. (Previously Presented) A method of producing a concrete product which comprises adding the polycarboxylic acid cement dispersant according to claim 1 to the concrete product and curing under a condition of a temperature of 30°C or more.

4. (Canceled)

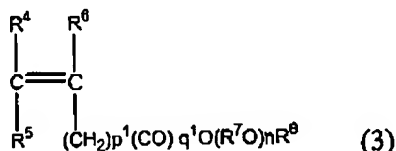
5. (Previously Presented) A method of producing a concrete product which comprises adding the polycarboxylic acid cement dispersant according to claim 1 curing by covering a periphery of a formwork with an insulating material.

6. (Canceled)

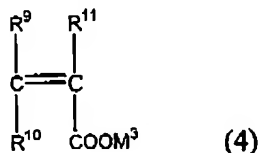
Application No.: 10/820,798

Docket No.: 21581-00320-US1

7. (Withdrawn) A method of producing a concrete product which makes use of a copolymer derived by using monomer components comprising a monomer (A) represented by the following general formula (3):

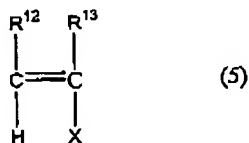


(wherein R^4 , R^5 and R^6 may be the same or different and each represents a hydrogen atom or a methyl group; p^1 represents a number of 0 to 2; q^1 represents a number of 0 or 1; $\text{R}^7 \text{O}$ may be the same or different and each represents an oxyalkylene group containing 2 to 18 carbon atoms; n represents the average molar number of addition of the oxyalkylene groups and is a number of 2 to 300; and R^8 represents a hydrogen atom or a hydrocarbon group containing 1 to 30 carbon atoms), monomer (B) represented by the following general formula (4)



(wherein R^9 and R^{10} may be the same or different and each represents a hydrogen atom, a methyl group or $-\text{COOM}^4$, provided that R^9 and R^{10} does not simultaneously represent $-\text{COOM}^4$; R^{11} represents a hydrogen atom, a methyl group or CH_2COOM^5 , R^9 and R^{10} may be the same or different and each represents a hydrogen atom or a methyl group; and M^3 , M^4 and M^5 may be the same or different and each represents a hydrogen atom, a monovalent metal, a divalent metal, ammonium or organic ammonium), and

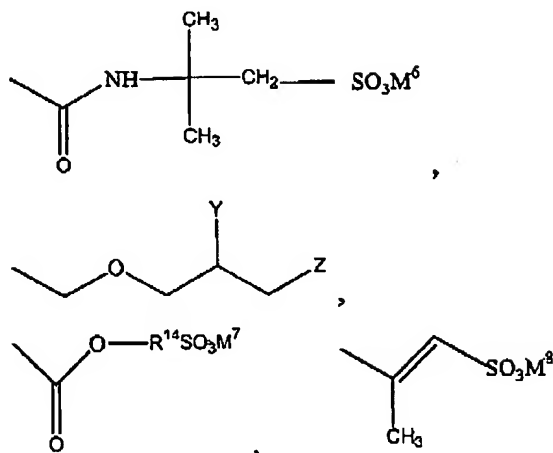
a monomer (C) represented by the following general formula (5):



X:

Application No.: 10/820,798

Docket No.: 21581-00320-US1



(wherein R^{12} and R^{13} may be the same or different and each represents a hydrogen atom or a methyl group; Y and Z represent a hydroxyl group or $-\text{SO}_3\text{M}^9$, in which in the case where Y represents a hydroxyl group, Z represents $-\text{SO}_3\text{M}^9$, while in the case where Y represents $-\text{SO}_3\text{M}^9$, Z represents a hydroxyl group; R^{14} represents an alkylene group containing 2 to 4 carbon atoms; and M^6 , M^7 , M^8 and M^9 may be the same or different and each represents a hydrogen atom, a monovalent metal, a divalent metal, ammonium or organic ammonium),

wherein the mass ratio of the monomer (C) relative to the total monomer components is not less than 0.1% by mass and not more than 35% by mass.

8. (Withdrawn) The method of producing a concrete product according to claim 7, which comprises a process of curing under a condition of a temperature of 30°C or more.

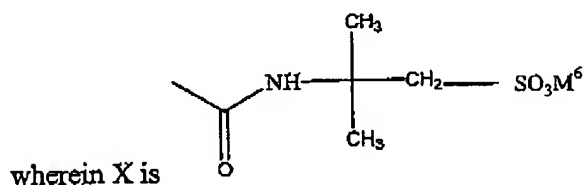
9. (Withdrawn) The method of producing a concrete product according to claim 7, which comprises a process of curing by covering a periphery of a formwork with an insulating material.

10. (Canceled)

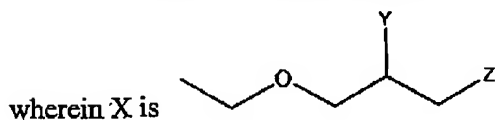
Application No.: 10/820,798

Docket No.: 21581-00320-US1

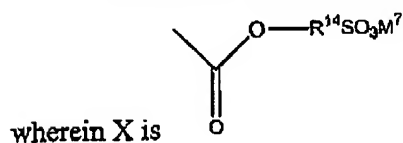
11. (New) The polycarboxylic acid cement dispersant according to claim 1



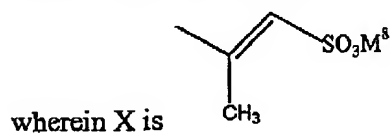
12. (New) The polycarboxylic acid cement dispersant according to claim 1



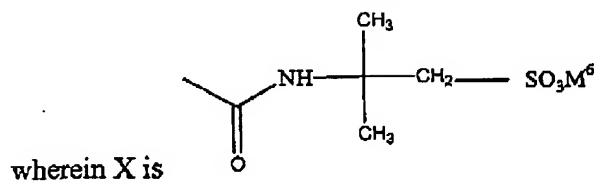
13. (New) The polycarboxylic acid cement dispersant according to claim 1



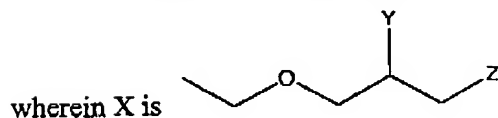
14. (New) The polycarboxylic acid cement dispersant according to claim 1



15. (New) The method of producing a concrete product according to claim 3



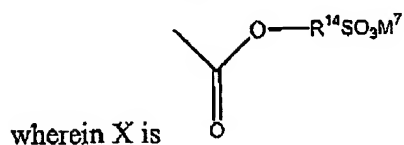
16. (New) The method of producing a concrete product according to claim 3



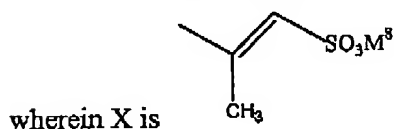
Application No.: 10/820,798

Docket No.: 21581-00320-US1

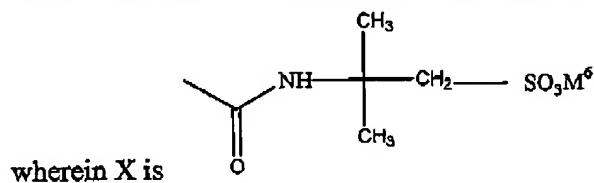
17. (New) The method of producing a concrete product according to claim 3



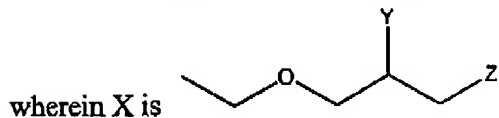
18. (New) The method of producing a concrete product according to claim 3



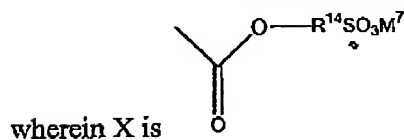
19 (New) The method of producing a concrete product according to claim 5



20. (New) The method of producing a concrete product according to claim 5



21. (New) The method of producing a concrete product according to claim 3



22. (New) The method of producing a concrete product according to claim 3

